



Ecological Resource Consultants, Inc.

35715 US Hwy. 40, Suite D204 ~ Evergreen, CO ~ 80439 ~ (303) 679-4820

Technical Memorandum

Date: June 4, 2012

To: Johnny Pappas, Haile Gold Mine, Inc.
Venable, LLP

From: David Blauch, Ecological Resource Consultants, Inc.

Re: **Haile Supplemental Response to RAI 2-TR-01**

Terrestrial Resources (TR)

RAI 2-TR-01: “*The environmental analysis includes an assessment of existing vegetation and proposed vegetation impacts/changes. Please provide the final report of vegetation mapping efforts described as “in progress” by Ecological Services and Consulting (2010), including the vegetation type descriptions, vegetation maps, shapefiles, acreage figures for the various vegetation types, and narrative results of the mapping and vegetation study effort that covers the entire mine area. Include a separate overlay on the vegetation map showing the areas to be disturbed by the proposed mine and acreage figures for the vegetation types disturbed.*”

Haile Supplemental Response to RAI 2-TR-01

ERC has finalized a vegetation community report and an associated mapping identifying natural and managed vegetation communities within the project site and a 0.5-mile surrounding radius (approximately 23.5 square miles). The Vegetation Community Mapping Report, ERC, January 6, 2012 was provided in full to the USACE as Exhibit GI-02.B7-1 to RAI #1 on February 29, 2012. An additional copy of the Vegetation Community Mapping Report was provided to the USACE via FedEx on April 6, 2012 as Haile Response to RAI 2-WW-05-g (on DVD # RAI 2-WW-05 Excerpt). The corresponding vegetation community mapping shapefiles were provided to the USACE on April 6, 2012 as Haile Response to RAI 2-WW-05-h (on DVD # RAI 2-WW-05 Excerpt).

The second part of **RAI 2-TR-01** requests the preparation of “*...a separate overlay on the vegetation map showing the areas to be disturbed by the proposed mine and acreage figures for the vegetation types disturbed.*” The following **Haile Supplemental Response to RAI 2-TR-01** is intended to address this portion of **RAI 2-TR-01** specifically.

ERC has evaluated vegetation communities within the updated mine areas that were presented in the ERC Technical Memorandum, Haile Modified Alternative General Layout-Waters of the US-Direct Impact Analysis, May 22, 2012 (referred to herein as “2012 Modified Plan”), which was provided to the USACE on May 24, 2012. The 2012 Modified Plan presents two site configurations. The first site configuration represents the Haile preferred 2012 Modified Plan **Sheet 1**. The second site configuration represents the 2012 Modified Plan **Sheet 2**, which corresponds to the original plant site configuration as described

in the Permit Application with modified access roads. This response includes an evaluation of both site configurations.

Using ArcMap Geographic Information Systems (GIS) version 10.0, the mine features presented in the 2012 Modified Plan were grouped into three disturbance areas: 1) direct removal area; 2) secondary removal area; and 3) 50 foot wetland buffer area. GIS polygon shapefiles for each mine plan disturbance area are enclosed as described in **Haile Supplemental Response to RAI 2-TR-01 Table 1** below. A description of these areas follows.

Direct removal area refers to the “footprint” of a planned activity or facility (i.e., daylight or last grade line) where vegetation will be directly impacted (i.e., physically cleared). On the 2012 Modified Plan, direct removal areas were shown as “Impact Areas” and “Facility-No Impact.”

Secondary removal area refers to mine land located outside of planned direct removal areas where vegetation may be subject to potential disturbance. These areas are assumed to have secondary impacts associated with potential incidental access, potential variation or modifications upon final construction design, construction implementation needs, BMP control measures, and/or general upland land uses associated with mining operations that may be needed. On the 2012 Modified Plan, secondary removal areas were shown as “Remainder of Property.”

50 foot wetland buffer area depicts a 50 foot outward offset from the jurisdictional and approximate wetland boundary defined by the Jurisdictional Determination Request Wetland Delineation Report, ERC, Revised January 6, 2012 and the 2012 Modified Plan. This buffer area is intended to be a “no-disturbance” area and will not be altered from the existing conditions. Within the 50 foot wetland buffer area, only vegetation communities are depicted, not the actual waters boundary.

The mine plan disturbance areas were then overlaid on the previously submitted vegetation community shapefile (provided to the USACE on April 6, 2012 as Haile Response to RAI 2-WW-05-h (on DVD # RAI 2-WW-05 Excerpt)) to determine the types and extent of vegetation communities potentially disturbed. Vegetation communities were not evaluated within the 50 foot wetland buffer as this is intended to be a “no-disturbance” area. The previously submitted vegetation community shapefile contains two separate classification systems: 1) the International Ecological Classification Standard (IECS) (NatureServe 2011); and 2) the Natural Communities of South Carolina (NCSC) (Nelson 1986), with individual attribute fields for both digitized IECS and NCSC classifications. GIS attribute abbreviations and corresponding vegetation community descriptions are summarized in the Vegetation Community Mapping Report. The resulting GIS dataset includes the following GIS polygon shapefiles:

Haile Supplemental Response to RAI 2-TR-01 Table 1. Vegetation Disturbance – List and Description of Enclosed GIS Shapefiles.

Enclosed Shapefile Name	Shapefile Description	GIS Attributes & Description
Sheet 1 – Boundary Files		
Exhibit RAI 2-TR-01-b-1	50 foot wetland buffer area	FID - Unique GIS ID Number
Exhibit RAI 2-TR-01-b-2	Direct removal area	ACRES - GIS Calculated Acreage

Enclosed Shapefile Name	Shapefile Description	GIS Attributes & Description
Exhibit RAI 2-TR-01-b-3	Secondary removal area	SITE - Name of Feature (i.e., TSF Haul Road)
Sheet 1 – Vegetation Disturbance Files		
Exhibit RAI 2-TR-01-b-4	Direct removal vegetation communities	FID - Unique GIS ID Number
Exhibit RAI 2-TR-01-b-5	Secondary removal vegetation communities	GPA_LV_2 - IECS Vegetation Community Type (per ERC 2012a) NELSON -NCSC Vegetation Community Type (per ERC 2012a) ACRES - GIS Calculated Acreage CLASS - Natural/Non-Natural Vegetation Community Type (per ERC 2012a) SITE - Name of Feature (i.e., TSF Haul Road)
Sheet 2 – Boundary Files		
Exhibit RAI 2-TR-01-c-1	50 foot wetland buffer area	FID - Unique GIS ID Number
Exhibit RAI 2-TR-01-c-2	Direct removal area	ACRES - GIS Calculated Acreage SITE - Name of Feature (i.e., TSF Haul Road)
Exhibit RAI 2-TR-01-c-3	Secondary removal area	
Sheet 2 – Vegetation Disturbance Files		
Exhibit RAI 2-TR-01-c-4	Direct removal vegetation communities	FID - Unique GIS ID Number
Exhibit RAI 2-TR-01-c-5	Secondary removal vegetation communities	GPA_LV_2 - IECS Vegetation Community Type (per ERC 2012a) NELSON -NCSC Vegetation Community Type (per ERC 2012a) ACRES - GIS Calculated Acreage CLASS - Natural/Non-Natural Vegetation Community Type (per ERC 2012a) SITE - Name of Feature (i.e., TSF Haul Road)
<p>Notes: Vegetation impact polygons are identified in the shapefiles by CES Code and NCSC abbreviations. A key to the abbreviations and detailed vegetation community descriptions are summarized in the Vegetation Community Mapping Report.</p> <p>Landuse and non-natural identifiers are not defined Ecological Systems per the IECS or NCSC and have been developed for this project only.</p>		

Four maps are enclosed illustrating vegetation communities within the 2012 Modified Plans:

Exhibit RAI 2-TR-01-d Exhibit 1. 2012 Modified Plan (SHEET 1), International Ecological Classification Standard

Exhibit RAI 2-TR-01-d Exhibit 2. 2012 Modified Plan (SHEET 1), Natural Communities of South Carolina

Exhibit RAI 2-TR-01-d Exhibit 3. 2012 Modified Plan (SHEET 2), International Ecological Classification Standard

Exhibit RAI 2-TR-01-d Exhibit 4. 2012 Modified Plan (SHEET 2), Natural Communities of South Carolina

Summary tables for the vegetation assessment are provided below (**Exhibit RAI 2-TR-01 Table 2** and **Exhibit RAI 2-TR-01 Table 3**).

Exhibit RAI 2-TR-01 Table 2. 2012 Modified Plan (SHEET 1) Summary of Vegetation Disturbance.			
Vegetation Disturbance	International Ecological Classification Standard	Natural Communities of South Carolina (NCSC)	Acres
	<i>Unique Identifier</i>	<i>Unique Identifier</i>	
Direct Removal			
01-DUCKWOOD TSF	CES202.323	SSF	4.36
	CES202.339	OHF	7.96
	CES203.241	OHF	163.61
	CES203.252	SHP	50.84
	CES203.254-a	XSC	51.40
	CES202-f	MVS	6.61
	CES203-a	MTP	51.79
	CES203-b	RL	12.38
	CES203-c	D	0.22
	CES203-e	MVF	4.85
	CES203-f	MVS	102.44
	CES203-i	TAR	72.74
Subtotal			529.20
02-HOLLY TSF BORROW AREA HAUL ROAD	CES202.323	SSF	0.61
	CES202.339	OHF	2.52
	CES203.241	OHF	0.82
	CES203-i	TAR	0.14
	Subtotal		4.09
03-HOCK TSF BORROW AREA HAUL ROAD	CES202.323	SSF	0.38
	CES202.339	OHF	0.45
	CES203.241	OHF	0.19
	CES202-f	MVS	2.45
	Subtotal		3.47

Exhibit RAI 2-TR-01 Table 2.
2012 Modified Plan (SHEET 1) Summary of Vegetation Disturbance.

Vegetation Disturbance	International Ecological Classification Standard	Natural Communities of South Carolina (NCSC)	Acres
	<i>Unique Identifier</i>	<i>Unique Identifier</i>	
05-PLANT SITE HAUL ROAD	CES203.241	OHF	0.04
	CES203.252	SHP	1.05
	CES203-f	MVS	15.52
		Subtotal	16.61
06-PIT RELATED ACTIVITIES	CES202.323	SSF	4.07
	CES202.339	OHF	43.56
	CES203.241	OHF	28.23
	CES203.247	SSF	11.55
	CES203.252	SHP	20.19
	CES203.254-a	XSC	2.05
	CES202-a	MTP	0.16
	CES202-c	D	38.45
	CES202-e	MVF	0.12
	CES202-i	TAR	0.11
	CES203-c	D	194.88
	CES203-e	MVF	32.01
	CES203-f	MVS	175.64
	CES203-h	OW	15.63
		Subtotal	566.65
07-DETENTION STRUCTURE	CES203.241	OHF	0.19
	CES203.252	SHP	2.82
	CES203-f	MVS	10.60
		Subtotal	13.61
08-ROBERT OSA HAUL ROAD	CES203.241	OHF	0.79
	CES203.252	SHP	1.47
	CES203-f	MVS	1.91
		Subtotal	4.17
09-HAYWORTH OSA HAUL ROAD	CES203.241	OHF	0.44
	CES203.252	SHP	1.14
	CES203-c	D	0.65
	CES203-e	MVF	1.37
	CES203-f	MVS	2.70
		Subtotal	6.30
10-JOHNNY'S OSA	CES203.241	OHF	2.67
	CES203.247	SSF	0.09
	CES203.252	SHP	13.07
	CES203-c	D	15.44
	CES203-e	MVF	22.18
	CES203-f	MVS	125.73
		Subtotal	179.18

Exhibit RAI 2-TR-01 Table 2.
2012 Modified Plan (SHEET 1) Summary of Vegetation Disturbance.

Vegetation Disturbance	International Ecological Classification Standard	Natural Communities of South Carolina (NCSC)	Acres
	<i>Unique Identifier</i>	<i>Unique Identifier</i>	
11-RAMONA'S OSA	CES202.323	SSF	13.38
	CES202.339	OHF	82.26
	CES202-a	MTP	17.93
	CES202-c	D	0.12
	CES202-e	MVF	40.07
	CES202-f	MVS	6.53
	CES202-h	OW	1.41
	CES202-i	TAR	3.52
		Subtotal	165.22
12-601 OSA	CES203.241	OHF	8.62
	CES203.247	SSF	0.02
	CES203.252	SHP	3.33
	CES203.254-a	XSC	0.06
	CES203-c	D	1.54
	CES203-f	MVS	31.30
		Subtotal	44.87
13-CHAMPION PIT	CES202.323	SSF	3.00
	CES202.339	OHF	20.47
	CES203.241	OHF	3.49
	CES203.252	SHP	0.60
	CES203.254-a	XSC	3.85
	CES202-e	MVF	3.27
	CES202-f	MVS	43.02
	CES202-h	OW	4.78
	CES202-i	TAR	6.06
	CES203-c	D	0.01
	CES203-f	MVS	0.19
		Subtotal	88.74
14-TSF HAUL ROAD	CES203.241	OHF	0.91
	CES203.252	SHP	2.28
	CES203.254-a	XSC	4.37
	CES203-a	MTP	8.95
	CES203-c	D	2.37
	CES203-e	MVF	1.19
	CES203-f	MVS	2.19
	CES203-i	TAR	0.15
		Subtotal	22.41
50 POND ACCESS ROAD	CES203-c	D	0.30
	CES203-f	MVS	4.09
		Subtotal	4.39

Exhibit RAI 2-TR-01 Table 2.
2012 Modified Plan (SHEET 1) Summary of Vegetation Disturbance.

Vegetation Disturbance	International Ecological Classification Standard	Natural Communities of South Carolina (NCSC)	Acres
	<i>Unique Identifier</i>	<i>Unique Identifier</i>	
50 POND ENTRANCE ROAD	CES203.254-a	XSC	0.02
	CES203-c	D	0.14
	CES203-f	MVS	0.13
		Subtotal	0.29
601 GROWTH MEDIA STORAGE AREA	CES203.254-a	XSC	3.56
	CES203-c	D	0.85
	CES203-e	MVF	0.54
	CES203-f	MVS	10.89
		Subtotal	15.84
DROUGHT CONTINGENCY POND (50 POND)	CES203.241	OHF	0.69
	CES203.254-a	XSC	1.86
	CES203-c	D	0.02
	CES203-f	MVS	17.47
		Subtotal	20.04
HAYWORTH GROWTH MEDIA STORAGE AREA	CES203-e	MVF	5.87
	CES203-f	MVS	17.05
		Subtotal	22.92
HAYWORTH OSA	CES203-b	RL	12.60
	CES203-c	D	1.71
	CES203-e	MVF	25.83
	CES203-f	MVS	55.36
		Subtotal	95.50
HILLTOP OSA	CES202.339	OHF	3.58
	CES203.241	OHF	0.19
	CES203-c	D	14.85
	CES203-e	MVF	0.72
	CES203-f	MVS	56.71
		Subtotal	76.05
HILLTOP OSA HAUL ROAD	CES202.339	OHF	0.77
	CES202-c	D	0.17
	CES203-c	D	0.22
	CES203-e	MVF	0.61
		Subtotal	1.77
HOCK TSF BORROW AREA	CES202.339	OHF	46.49
	CES203.241	OHF	16.99
	CES203.254-a	XSC	11.69
	CES202-f	MVS	18.77
	CES202-i	TAR	4.39
	CES203-i	TAR	6.44
		Subtotal	104.77

Exhibit RAI 2-TR-01 Table 2.
2012 Modified Plan (SHEET 1) Summary of Vegetation Disturbance.

Vegetation Disturbance	International Ecological Classification Standard	Natural Communities of South Carolina (NCSC)	Acres
	<i>Unique Identifier</i>	<i>Unique Identifier</i>	
HOLLY TSF BORROW AREA	CES202.339	OHF	1.25
	CES203.241	OHF	27.51
	CES203.254-a	XSC	29.09
	CES203-i	TAR	11.11
		Subtotal	68.96
JAMES OSA	CES203.241	OHF	0.40
	CES203-e	MVF	3.58
	CES203-f	MVS	81.41
		Subtotal	85.39
PLANT SITE	CES203.252	SHP	0.24
	CES203.254-a	XSC	4.46
	CES203-c	D	41.56
	CES203-e	MVF	14.28
	CES203-f	MVS	29.84
		Subtotal	90.38
PLANT SITE ACCESS ROAD	CES203-c	D	7.09
	CES203-e	MVF	0.11
		Subtotal	7.20
ROBERT OSA	CES203-a	MTP	49.98
	CES203-c	D	2.49
	CES203-e	MVF	1.79
	CES203-f	MVS	36.01
		Subtotal	90.27
SNAKE GROWTH MEDIA STORAGE AREA	CES203.241	OHF	14.72
	CES203-f	MVS	2.47
		Subtotal	17.19
TSF GROWTH MEDIA STORAGE AREA	CES203.254-a	XSC	0.04
	CES203-e	MVF	18.24
	CES203-f	MVS	37.82
		Subtotal	56.10
TSF GROWTH MEDIA STORAGE AREA ACCESS	CES203.254-a	XSC	2.73
	CES203-f	MVS	3.40
		Subtotal	6.13
TSF HAUL ROAD	CES203.241	OHF	3.76
	CES202.339	OHF	0.98
	CES203-e	MVF	3.30
	CES203-f	MVS	0.10
	CES203-i	TAR	2.05
		Subtotal	10.19
	TOTAL DIRECT REMOVAL		2,417.90

Exhibit RAI 2-TR-01 Table 2.
2012 Modified Plan (SHEET 1) Summary of Vegetation Disturbance.

Vegetation Disturbance	International Ecological Classification Standard	Natural Communities of South Carolina (NCSC)	Acres
	<i>Unique Identifier</i>	<i>Unique Identifier</i>	
Secondary Removal			
	CES202.323	SSF	32.99
	CES202.339	OHF	231.24
	CES203.241	OHF	245.66
	CES203.247	SSF	0.77
	CES203.252	SHP	0.22
	CES203.254	XSC	3.89
	CES203.254-a	XSC	131.72
	CES202-a	MTP	35.16
	CES202-c	D	6.57
	CES202-d	A	0.89
	CES202-e	MVF	61.14
	CES202-f	MVS	80.15
	CES202-i	TAR	5.11
	CES203-a	MTP	129.78
	CES203-b	RL	70.18
	CES203-c	D	104.14
	CES203-d	A	29.42
	CES203-e	MVF	139.41
	CES203-f	MVS	328.82
	CES203-i	TAR	18.14
		Subtotal	1,655.40
	TOTAL SECONDARY REMOVAL		1,655.40
	TOTAL VEGETATION DISTURBANCE (DIRECT & SECONDARY REMOVAL)		4,073.30
	TOTAL 50' WETLAND BUFFER (NO DISTURBANCE)		478.86
	TOTAL ACRES (50' Wetland Buffer, Direct & Secondary Removal Areas)		4,552.16
Natural Non-Natural			
Notes: TOTAL ACRES as shown above varies by 0.09 acres from the calculated project boundary of approximately 4,552.25 acres due to minor GIS topology error in the polygon dataset.			

Exhibit RAI 2-TR-01 Table 2.

2012 Modified Plan (SHEET 1) Summary of Vegetation Disturbance.

Vegetation Disturbance	International Ecological Classification Standard	Natural Communities of South Carolina (NCSC)	Acres
	<i>Unique Identifier</i>	<i>Unique Identifier</i>	
VEGETATION COMMUNITY SUMMARY			
Vegetation Disturbance (Direct Removal)	CES202.323	SSF	25.80
	CES202.339	OHF	210.29
	CES203.241	OHF	274.26
	CES203.247	SSF	11.66
	CES203.252	SHP	97.03
	CES203.254-a	XSC	115.18
	CES202-a	MTP	18.09
	CES202-c	D	38.74
	CES202-e	MVF	43.46
	CES202-f	MVS	77.38
	CES202-h	OW	6.19
	CES202-i	TAR	14.08
	CES203-a	MTP	110.72
	CES203-b	RL	24.98
	CES203-c	D	284.34
	CES203-e	MVF	136.47
	CES203-f	MVS	820.97
	CES203-h	OW	15.63
	CES203-i	TAR	92.63
		TOTAL	2,417.90

Exhibit RAI 2-TR-01 Table 3.
2012 Modified Plan (SHEET 2) Summary of Vegetation Disturbance.

Vegetation Disturbance	International Ecological Classification Standard	Natural Communities of South Carolina (NCSC)	Acres
	<i>Unique Identifier</i>	<i>Unique Identifier</i>	
Direct Removal			
01-DUCKWOOD TSF	CES202.323	SSF	4.36
	CES202.339	OHF	7.96
	CES203.241	OHF	163.61
	CES203.252	SHP	50.84
	CES203.254-a	XSC	51.40
	CES202-f	MVS	6.61
	CES203-a	MTP	51.79
	CES203-b	RL	12.38
	CES203-c	D	0.22
	CES203-e	MVF	4.85
	CES203-f	MVS	102.44
	CES203-i	TAR	72.74
			Subtotal 529.20
02-HOLLY TSF BORROW AREA HAUL ROAD	CES202.323	SSF	0.61
	CES202.339	OHF	2.52
	CES203.241	OHF	0.82
	CES203-i	TAR	0.14
			Subtotal 4.09
03-HOCK TSF BORROW AREA HAUL ROAD	CES202.323	SSF	0.38
	CES202.339	OHF	0.45
	CES203.241	OHF	0.19
	CES202-f	MVS	2.45
			Subtotal 3.47
04-PLANT SITE	CES203.241	OHF	0.19
	CES203.252	SHP	7.36
	CES203.254-a	XSC	6.62
	CES203-c	D	22.96
	CES203-e	MVF	7.72
	CES203-f	MVS	45.79
			Subtotal 90.64
05-PLANT SITE HAUL ROAD	CES203-f	MVS	3.78
			Subtotal 3.78

Exhibit RAI 2-TR-01 Table 3.
2012 Modified Plan (SHEET 2) Summary of Vegetation Disturbance.

Vegetation Disturbance	International Ecological Classification Standard	Natural Communities of South Carolina (NCSC)	Acres
	<i>Unique Identifier</i>	<i>Unique Identifier</i>	
06-PIT RELATED ACTIVITIES	CES202.323	SSF	4.07
	CES202.339	OHF	43.56
	CES203.241	OHF	28.23
	CES203.247	SSF	11.55
	CES203.252	SHP	20.19
	CES203.254-a	XSC	2.05
	CES202-a	MTP	0.16
	CES202-c	D	38.45
	CES202-e	MVF	0.12
	CES202-i	TAR	0.11
	CES203-c	D	194.88
	CES203-e	MVF	32.01
	CES203-f	MVS	175.64
	CES203-h	OW	15.63
	Subtotal		566.65
07-DETENTION STRUCTURE	CES203.241	OHF	0.19
	CES203.252	SHP	2.82
	CES203-f	MVS	10.60
	Subtotal		13.61
08-ROBERT OSA HAUL ROAD	CES203.241	OHF	0.79
	CES203.252	SHP	1.47
	CES203-f	MVS	1.91
	Subtotal		4.17
09-HAYWORTH OSA HAUL ROAD	CES203.241	OHF	0.44
	CES203.252	SHP	1.14
	CES203-c	D	0.65
	CES203-e	MVF	1.37
	CES203-f	MVS	2.70
	Subtotal		6.30
10-JOHNNY'S OSA	CES203.241	OHF	2.67
	CES203.247	SSF	0.09
	CES203.252	SHP	13.07
	CES203-c	D	15.44
	CES203-e	MVF	22.18
	CES203-f	MVS	125.73
	Subtotal		179.18

Exhibit RAI 2-TR-01 Table 3.
2012 Modified Plan (SHEET 2) Summary of Vegetation Disturbance.

Vegetation Disturbance	International Ecological Classification Standard	Natural Communities of South Carolina (NCSC)	Acres	
	<i>Unique Identifier</i>	<i>Unique Identifier</i>		
11-RAMONA'S OSA	CES202.323	SSF	13.38	
	CES202.339	OHF	82.26	
	CES202-a	MTP	17.93	
	CES202-c	D	0.12	
	CES202-e	MVF	40.07	
	CES202-f	MVS	6.53	
	CES202-h	OW	1.41	
	CES202-i	TAR	3.52	
Subtotal			165.22	
12-601 OSA	CES203.241	OHF	8.62	
	CES203.247	SSF	0.02	
	CES203.252	SHP	3.33	
	CES203.254-a	XSC	0.06	
	CES203-c	D	1.54	
	CES203-f	MVS	31.30	
	Subtotal			44.87
13-CHAMPION PIT	CES202.323	SSF	3.00	
	CES202.339	OHF	20.47	
	CES203.241	OHF	3.49	
	CES203.252	SHP	0.60	
	CES203.254-a	XSC	3.85	
	CES202-e	MVF	3.27	
	CES202-f	MVS	43.02	
	CES202-h	OW	4.78	
	CES202-i	TAR	6.06	
	CES203-c	D	0.01	
14-TSF HAUL ROAD	CES203-f	MVS	0.19	
	Subtotal			88.74
	CES203.241	OHF	0.97	
	CES203.252	SHP	2.87	
	CES203.254-a	XSC	4.43	
	CES203-a	MTP	8.95	
	CES203-c	D	5.97	
	CES203-e	MVF	2.16	
50 POND ACCESS ROAD	CES203-f	MVS	2.00	
	CES203-i	TAR	0.15	
	Subtotal			27.50
	CES203-c	D	0.30	
	CES203-f	MVS	4.09	
Subtotal			4.39	

Exhibit RAI 2-TR-01 Table 3.
2012 Modified Plan (SHEET 2) Summary of Vegetation Disturbance.

Vegetation Disturbance	International Ecological Classification Standard	Natural Communities of South Carolina (NCSC)	Acres
	<i>Unique Identifier</i>	<i>Unique Identifier</i>	
50 POND ENTRANCE ROAD	CES203.254-a	XSC	0.02
	CES203-c	D	0.14
	CES203-f	MVS	0.13
		Subtotal	0.29
601 GROWTH MEDIA STORAGE AREA	CES203.254-a	XSC	3.56
	CES203-c	D	0.85
	CES203-e	MVF	0.54
	CES203-f	MVS	10.89
		Subtotal	15.84
DROUGHT CONTINGENCY POND (50 POND)	CES203.241	OHF	0.69
	CES203.254-a	XSC	1.86
	CES203-c	D	0.02
	CES203-f	MVS	17.47
		Subtotal	20.04
HAYWORTH GROWTH MEDIA STORAGE AREA	CES203-e	MVF	5.87
	CES203-f	MVS	17.05
		Subtotal	22.92
HAYWORTH OSA	CES203-b	RL	12.60
	CES203-c	D	1.71
	CES203-e	MVF	25.83
	CES203-f	MVS	55.36
		Subtotal	95.50
HILLTOP OSA	CES202.339	OHF	3.58
	CES203.241	OHF	0.19
	CES203-c	D	14.85
	CES203-e	MVF	0.72
	CES203-f	MVS	56.71
		Subtotal	76.05
HILLTOP OSA HAUL ROAD	CES202.339	OHF	0.77
	CES202-c	D	0.17
	CES203-c	D	0.22
	CES203-e	MVF	0.61
		Subtotal	1.77
HOCK TSF BORROW AREA	CES202.339	OHF	46.49
	CES203.241	OHF	16.99
	CES203.254-a	XSC	11.69
	CES202-f	MVS	18.77
	CES202-i	TAR	4.39
	CES203-i	TAR	6.44
		Subtotal	104.77

Exhibit RAI 2-TR-01 Table 3.
2012 Modified Plan (SHEET 2) Summary of Vegetation Disturbance.

Vegetation Disturbance	International Ecological Classification Standard	Natural Communities of South Carolina (NCSC)	Acres
	<i>Unique Identifier</i>	<i>Unique Identifier</i>	
HOLLY TSF BORROW AREA	CES202.339	OHF	1.25
	CES203.241	OHF	27.51
	CES203.254-a	XSC	29.09
	CES203-i	TAR	11.11
		Subtotal	68.96
JAMES OSA	CES203.241	OHF	0.40
	CES203-e	MVF	3.58
	CES203-f	MVS	81.41
		Subtotal	85.39
PLANT SITE ACCESS ROAD	CES203.252	SHP	0.01
	CES203.254-a	XSC	0.37
	CES203-c	D	9.93
	CES203-e	MVF	0.39
	CES203-f	MVS	0.15
		Subtotal	10.85
ROBERT OSA	CES203-a	MTP	49.98
	CES203-c	D	2.49
	CES203-e	MVF	1.79
	CES203-f	MVS	36.01
		Subtotal	90.27
SNAKE GROWTH MEDIA STORAGE AREA	CES203.241	OHF	14.72
	CES203-f	MVS	2.47
		Subtotal	17.19
TSF GROWTH MEDIA STORAGE AREA	CES203.254-a	XSC	0.04
	CES203-e	MVF	18.24
	CES203-f	MVS	37.82
		Subtotal	56.10
TSF GROWTH MEDIA STORAGE AREA ACCESS	CES203.254-a	XSC	2.73
	CES203-f	MVS	3.40
		Subtotal	6.13
TSF HAUL ROAD	CES203.241	OHF	3.76
	CES202.339	OHF	0.98
	CES203-e	MVF	3.30
	CES203-f	MVS	0.10
	CES203-i	TAR	2.05
		Subtotal	10.19
TOTAL DIRECT REMOVAL			2,414.07

Exhibit RAI 2-TR-01 Table 3.
2012 Modified Plan (SHEET 2) Summary of Vegetation Disturbance.

Vegetation Disturbance	International Ecological Classification Standard	Natural Communities of South Carolina (NCSC)	Acres
	Unique Identifier	Unique Identifier	
Secondary Removal			
	CES202.323	SSF	32.99
	CES202.339	OHF	231.24
	CES203.241	OHF	245.70
	CES203.247	SSF	0.77
	CES203.252	SHP	0.64
	CES203.254	XSC	3.89
	CES203.254-a	XSC	129.73
	CES202-a	MTP	35.16
	CES202-c	D	6.57
	CES202-d	A	0.89
	CES202-e	MVF	61.14
	CES202-f	MVS	80.15
	CES202-i	TAR	5.11
	CES203-a	MTP	129.78
	CES203-b	RL	70.18
	CES203-c	D	116.31
	CES203-d	A	29.42
	CES203-e	MVF	144.98
	CES203-f	MVS	328.84
	CES203-i	TAR	18.14
		Subtotal	1,671.63
	TOTAL SECONDARY REMOVAL		1,671.63
	TOTAL VEGETATION DISTURBANCE (DIRECT & SECONDARY REMOVAL)		4,085.70
	TOTAL 50' WETLAND BUFFER (NO DISTURBANCE)		466.47
	TOTAL ACRES (50' Wetland Buffer, Direct & Secondary Removal Areas)		4,552.17
Natural			
Non-Natural			
Notes:			
TOTAL ACRES as shown above varies by 0.08 acres from the calculated project boundary of approximately 4,552.25 acres due to minor GIS topology error in the polygon dataset.			

Exhibit RAI 2-TR-01 Table 3.
2012 Modified Plan (SHEET 2) Summary of Vegetation Disturbance.

Vegetation Disturbance	International Ecological Classification Standard	Natural Communities of South Carolina (NCSC)	Acres
	<i>Unique Identifier</i>	<i>Unique Identifier</i>	
VEGETATION COMMUNITY SUMMARY			
Vegetation Disturbance (Direct Removal)	CES202.323	SSF	25.8
	CES202.339	OHF	210.29
	CES203.241	OHF	274.47
	CES203.247	SSF	11.66
	CES203.252	SHP	103.7
	CES203.254-a	XSC	117.77
	CES202-a	MTP	18.09
	CES202-c	D	38.74
	CES202-e	MVF	43.46
	CES202-f	MVS	77.38
	CES202-h	OW	6.19
	CES202-i	TAR	14.08
	CES203-a	MTP	110.72
	CES203-b	RL	24.98
	CES203-c	D	272.18
	CES203-e	MVF	131.16
	CES203-f	MVS	825.14
	CES203-h	OW	15.63
	CES203-i	TAR	92.63
		TOTAL	2,414.07

Haile Supplemental Response to RAI 2-TR-01 References

- Anderson, M., P. Bourgeron, M. T. Bryer, R. Crawford, L. Engelking, D. Faber-Langendoen, M. Gallyoun, K. Goodin, D. H. Grossman, S. Landaal, K. Metzler, K. D. Patterson, M. Pyne, M. Reid, L. Sneddon, and A. S. Weakley. 1998. International classification of ecological communities: terrestrial vegetation of the United States. Volume II. The National Vegetation Classification System: list of types. The Nature Conservancy, Arlington, Virginia, USA.
- ERC. Ecological Resource Consultants, Inc. 2012. Jurisdictional Determination Request Wetland Delineation Report, Haile Gold Mine Project (SAC 1992-24122-4IA). Lancaster County, South Carolina. Revised – January 6.
- _____ 2012a. Vegetation Community Mapping Report Haile Gold Mine Project Lancaster County, South Carolina. January 6.
- _____ 2012b. Technical Memorandum, Haile Modified Alternative General Layout-Waters of the US-Direct Impact Analysis. May 22.
- FSA. 2011. Farm Service Agency Orthorectified Aerial Photography, Lancaster County, South Carolina. Available online at: <http://datagateway.nrcs.usda.gov/>
- NatureServe. 2011. Terrestrial Ecological Systems of location: US State SC or Ecological Provinces 231 or 232 or MRLC Map Zones 54 or 58; Excluding Aggregates. July 31.
- Nelson, J.B. 1986. The Natural Communities of South Carolina. South Carolina Wildlife & Marine Resources Department. February.